

NYSEIA Analysis of Interconnection Inventory for Projects 50 kW to 999 kW

Introduction

Based on the discussion at previous ITWG meetings, it was our understanding that one of the principle concerns from the Joint Utilities regarding the current threshold for monitoring and control was the stacking of multiple stand-alone facilities without utility monitoring and controls under 1 MW nearby to one another on the same circuit and how to manage any potential impacts from that. In order to gain a better insight into the data provided in the memo "*03/29/17 ITWG Meeting Follow-Ups – DG Penetration Analysis*" we examined the specified circuits in Central Hudson, National Grid, NYSEG/RG&E, and Orange and Rockland to determine the number and nature of the projects making up the 50 to 999 kW capacity. In addition, we undertook a systematic assessment of the entire queue for all of the Joint Utilities for all projects between 50 to 999 kW to gain a broader view on this market segment, its growth, and its current status.

From the following data, we would argue that:

1. The question of multiple stand-alone systems clustering on individual circuits does not appear to be a significant systemic concern across the JU given the current systems and present queue. Over 92% of the circuits that have solar PV projects or open interconnection applications have either zero or at most one project in the 50 to 999 kW size range and only 2.1% have more than three projects in that range, many of these systems are behind loads and are not stand-alone, and the average aggregate capacity of clustered systems across all circuits is modest.
2. The number of systems in the 50 to 999 kW size range is not growing as rapidly as the greater than 1 MW market is. For example, more than 90% of the capacity in systems over 50 kW applied for after January 1, 2015 have been in facilities at or over 1 MW and this is not expected to change through 2020.
3. The few sites where clustering of multiple smaller systems in this size range may be a concern are amenable to a case-by-case treatment and do not require at this time the wholesale reduction of the thresholds for monitoring and/or control as a general rule.

As such, we continue to endorse the solar industry's recommendations from February 13, 2017 concerning the path forward on monitoring and control of PV systems under 1 MW in capacity.

Breakdown of JU DG Solar PV Penetration Analysis on High Penetration Circuits

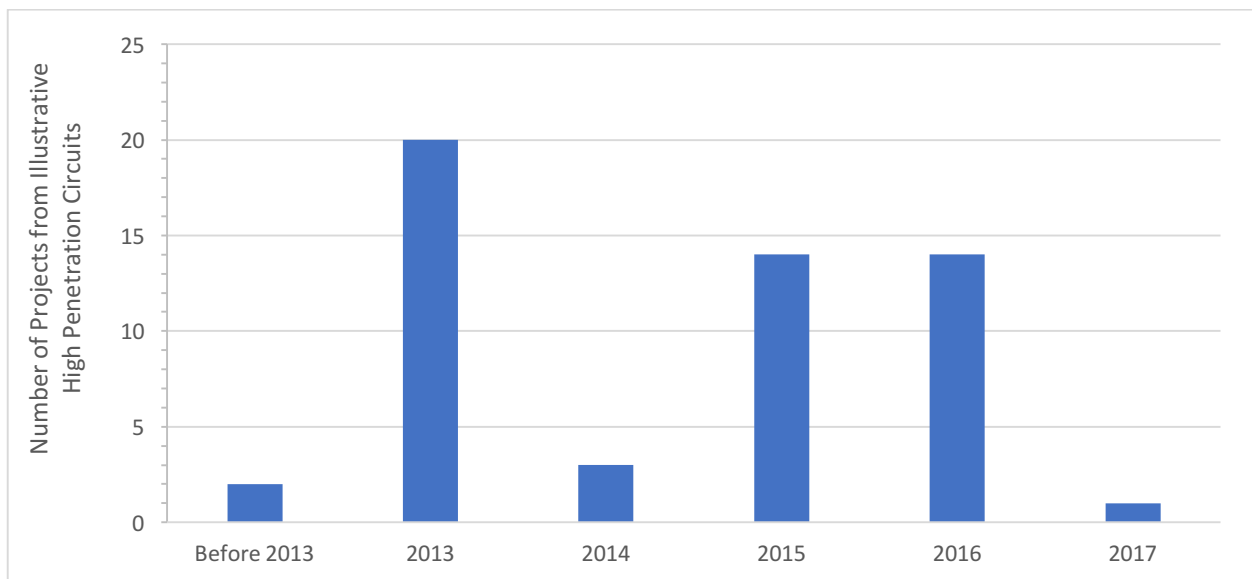
	Circuit ID	Number of Projects	Capacity of Projects (kW)	% of Capacity that is Behind a Load
NYSEG/RG&E	1107433	1	975	0%
	2301358	2	175 840	17.2%
	2301614	1	950	0%
Central Hudson	3071	2	264 875	23.2%
	4027	5	50 50.4 100 308 600	100%
National Grid	13-81755	6	60 126 126 168 168 600	23.6%
	17-60451	2	475 825	0%
	18-76257	1	840	100%
	30-14951 ⁽¹⁾	1	159.6	100%
	30-14952	6	100 150 180 250 250 250	87.3%
	35-36654	2	432 476	52.4%
	31-32851	6	50 100 100 144 250 250	94.4%
	32-26554	5	50 57.6 57.6 57.6 960	18.8%
	31-33351	5	144 144 150 150 150	40.7%
	32-13757 ⁽¹⁾	1	600	100%

	32-13853	2	240 720	100%
	33-08756	3	260 300 888	100%
O&R	109-2-13	1	984	0%
	51-2-13	2	292 624	100%

(1) For these two circuits, we could not reproduce the numbers given in the JU memo from the March SIR Inventory from the DPS website

In addition to the fact that the above circuits comprise a small percentage of the circuits across all of the Joint Utilities' service territories as we will discuss below, from the table above, it can be seen that the illustrative high penetration circuits shown in the JU memo contain a great deal of diversity at the project level from circuits with only a single stand-alone system near 1 MW in capacity, to those with one or two smaller systems behind loads, to those with a mix of up to five or six facilities of various types. As the impacts on the illustrative circuits shown above can be expected to be substantively varied due to the diversity in project number and type we identified, to the geographic dispersion of the sites, and to the individual circuit characteristics, this argues, in our view, for a case-by-case analysis of projects on specific circuits rather than a blanket lowering of the thresholds for monitoring and/or control from their current value for all circuits.

In addition, in order to examine the urgency of addressing such sites we looked at the spread of their application dates over time. The figure below shows that the projects in the illustrative circuits presented by the JU do not appear to represent a recent rush of small projects that would raise immediate concerns over their near-term impact with more than 46% of these projects having been applied for before January 1, 2015.



Analysis of the Entire Interconnection Inventory for Projects 50 kW to 999 kW

From our analysis of the interconnection queue, we found that there were a total of 3,422 unique circuits across all of the Joint Utilities' service territories that have solar PV projects or open interconnection applications. Of these, 3,173 (or more than 92%) have either zero or at most one project in the range of 50 kW to 999 kW. In addition, we found that less than 22% of the projects in this size range are stand-alone RNM or CDG facilities. These findings further support our conclusion that the clustering of large numbers of smaller systems is not a universal problem at this time and one that is best addressed on a case-by-case basis rather than a blanket lowering of the thresholds for monitoring and/or control.

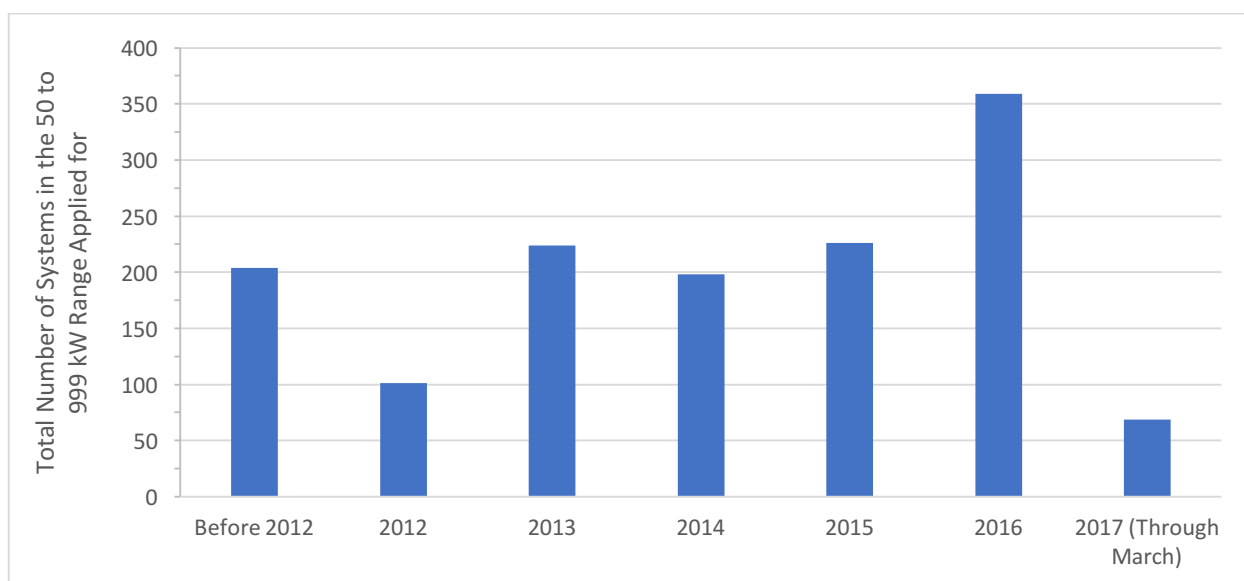
To further explore this, we looked at the 752 individual circuits with one or more projects or open interconnection applications for solar PV systems in this size range. The results are shown in the following table.

Number of Projects on Circuit in the Range 50-999 kW	Number of Circuits	Percent of Circuits with at least one 50-999 kW System	Average Aggregate Capacity on the Circuits from All Projects in this Size Range
1	503	66.9%	192 kW
2	124	16.5%	369 kW
3	54	7.2%	461 kW

As can be seen from the above more than two-thirds of all circuits with projects in this range of capacities have only a single such system. In addition, even for the 7.2% of the circuits with 3 projects in this range, the average aggregate capacity on these lines is just 461 kW. This aggregate does show a wide diversity, however, with a minimum of just 154 kW to a maximum aggregate capacity on circuits with 3 such projects of 1,448 kW.

The fact that the majority of circuits even with up to three projects in the 50 kW to 999 kW range have aggregate capacities that are likely to be relatively modest with respect to the minimum load on a number of these circuits with only a small number having higher aggregate capacities continues to argue, in our view, that the current interconnection queue does not raise dramatic or systemic issues with the clustering of such systems and that concerns in individual instances could best be dealt with on a case-by-case basis.

Finally, we repeated our temporal analysis above but for all projects in this size range examining when their applications were filed as shown in the following figure.



Consistent with our findings from the illustrative high penetration circuits above, we found that there has not been the type of dramatic increase in the number of smaller projects as we have seen in the larger scale market. For example, for systems in the 50 to 999 kW range, more than half of all applications for these systems were filed before January 1, 2015 as compared to just 5.0% of the applications for projects over 1 MW. To see this comparison another way, the projects between 50 and 999 kW applied for since January 1, 2015 total 140 MW as compared to 1,345 MW of applications for systems over 1 MW. In other words, more than 90% of the capacity in systems over 50 kW applied for after January 1, 2015 have been in facilities at or over 1 MW. As a result, we continue to conclude that there is time to defer a blanket lowering of the monitoring and/or control threshold while efforts to develop, test, validate, and deploy lower cost monitoring only solutions expand.